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Does the Degree of Public Refinancing Matter?**

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Aid Allocation by German NGOs: Does the Degree of Public Refinancing Matter?*

Axel Dreher, Peter Nunnenkamp, Susann Thiel, Rainer Thiele

Abstract: Using a new dataset for 41 German non-governmental organizations (NGOs), we analyze the allocation of NGO aid across recipient countries in a Tobit regression framework. By identifying for each NGO the degree of public refinancing, we address the largely unresolved issue of whether financial dependence on the government impairs the targeting of NGO aid. It turns out that German NGOs are more active in poorer countries, while they do not complement official aid by working under difficult local conditions. Beyond a certain threshold, rising financial dependence weakens their poverty orientation and provides an incentive to engage in “easier” environments. In addition, we find that the NGOs follow the state as well as NGO peers when allocating aid. This herding behavior is, however, hardly affected by the degree of public refinancing.

Keywords: NGO aid; aid allocation; public refinancing

JEL classification: F35

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1. Introduction

Non-governmental organizations (NGOs) play an important role for scaling up international aid efforts. This applies even to large official donors such as Germany. Apart from debt relief (which controversially enters official aid statistics), net bilateral official development assistance (ODA) from Germany amounted to an annual average of €3.2 billion in 2005-2007.¹ At the same time, German NGOs mobilized own resources in the order of €1.1 billion per annum from private donations and contributions by members. In addition, about €400 million of ODA were delivered to recipient countries through German NGOs, notably political foundations and clerical organizations. Hence, German NGOs allocated a larger share of bilateral German aid than major official agencies engaged in technical and financial cooperation.²

Yet it is open to question whether NGOs are clearly distinct from official aid agencies when it comes to the allocation of aid. In contrast to official donors who are often pursuing their own political and economic interest (e.g., Alesina and Dollar 2000), NGOs may pay more attention to recipients' need and merit as major allocation criteria. Needs-based targeting is necessary, though not sufficient, for NGOs to help reduce worldwide poverty. NGOs may also fill important gaps by allocating aid to where government-to-government transfers are unlikely to work, e.g., when governance is particularly deficient in the recipient country (World Bank 1998). Werker and Ahmed (2008: 77) argue that NGOs as private not-for-profit agents can play a complementary role in international development cooperation as they tend to be altruistic and “should be advantaged in providing goods and services where quality is difficult to verify.” Critics suspect, however, that NGOs might be less autonomous than widely believed. Edwards and Hulme (1996: 970) posit that NGOs have often become “the implementer of the policy agendas” of governments, especially if they depend on official refinancing.

Empirical evidence shedding light on these conflicting propositions is still scarce (Section 2). Very few studies account for official refinancing of NGOs and analyze whether and in which way financial dependence shapes the allocation of NGO aid. To help close this

¹ For data from the Ministry for Economic Cooperation and Development (BMZ) on German aid see: <http://www.bmz.de/en/figures/InDetail/index.html>; it should be noted, however, that some BMZ data used below are published only on the German version of the website; earlier data were kindly made available to us by BMZ staff.

² GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit) is the implementing agency responsible for technical cooperation, KfW banking group (Kreditanstalt für Wiederaufbau) the agency for financial cooperation. Their combined net annual aid in 2005-2007 was € 930 million (<http://www.bmz.de/en/figures/InDetail/index.html>).

gap the subsequent evaluation uses unpublished data on the cross-country allocation of NGO aid that we collected from 41 German NGOs for the years 2005-2007. As shown in Section 3, this sample accounts for a large part of overall German NGO aid. In Section 4, we report empirical findings from Tobit models, including instrumental variables estimations to address endogeneity concerns. We extend conventional specifications in several respects, notably by accounting for possible interactions between official refinancing of NGOs and recipient-country characteristics as well as the activities of other donors. It turns out that German NGOs are more active in poorer countries, while they do not complement the government by working under difficult local conditions. Beyond a certain threshold, rising financial dependence weakens their poverty orientation and provides an incentive to engage in “easier” environments. In addition, we find that German NGOs follow the state as well as NGO peers when allocating aid. This herding behavior is, however, hardly affected by the degree of public refinancing.

2. Analytical background

The literature on non-profit enterprises suggests that NGOs engaged in international development cooperation could complement official aid efforts both quantitatively and qualitatively.³ As detailed below, this literature provides relevant insights in the aid context even though official agencies are not striving for profits either. According to Hansmann (1980: 835), “the nonprofit organization should be viewed as a reasonable response to a relatively well-defined set of social needs.” Glaeser and Shleifer (2001) consider the not-for-profit status to be a means of committing to “soft incentives,” protecting stakeholders such as volunteers, donors, consumers and employees from ex post expropriation of profits by executives exercising control over the organization.⁴ In the aid context, not-for-profits should have a competitive advantage in raising funds through private donations and official co-financing. Donors and co-financiers must not fear that their contributions are appropriated by executives of aid agencies. Moreover, not-for-profits have less incentive to shirk on aid delivery to, and aid quality in recipient countries – compared to profit-oriented agents whose behavior cannot be fully controlled by explicit contracts on delivery and quality.

³ However, Kilby (1999) argues that aid delivery through NGOs poses a dilemma as the promotion of effective development cooperation may conflict with state sovereignty.

⁴ In other words, not-for-profits are subject to the so-called non-distribution constraint (Hansmann 1980; Werker and Ahmed 2008).

The theoretical model of Glaeser and Shleifer (2001) implies a clear case for not-for-profit organizations in international development cooperation: Quality is difficult to verify, activities rely on charitable donations, and agents are often motivated by altruism. The case for NGOs may be less obvious, though, because official aid agencies cannot appropriate private profits either by shirking on aid delivery and quality. Yet there are reasons to suspect that NGO aid is governed by softer incentives and, thus, complements ODA. Official donors often pursue selfish objectives. Previous research has shown that some donor countries tend to use aid to promote exports to recipient countries (e.g., Berthélemy 2006), while others “buy” political support by granting ODA (e.g., Kuziemko and Werker 2006; Kilby 2006; Fleck and Kilby 2006). Furthermore, profit oriented firms play an important role as private contractors in conventional aid channels. Werker and Ahmed (2008) estimate that about half of open USAID contracts are awarded to profit oriented firms. While NGOs are typically involved in aid projects with a strong public goods component (e.g., in health, education or other areas listed under social infrastructure by the OECD’s Development Assistance Committee), private firms tend to be involved in projects in the area of physical infrastructure where aid delivery and quality is easier to verify.

Complementarities of this sort fit fairly well into Glaeser and Shleifer’s (2001) model of not-for-profits. Specifically, NGOs being subject to the non-distribution constraint can be expected to be close to the poor and target aid according to need (e.g., Riddell, Bebbington and Peck 1995). In addition to the general poverty orientation of NGO aid, familiarity with local communities allows for speedy responses to natural disasters and less bureaucratic NGO support under conditions of emergency. NGOs are also suspected to complement ODA where particularly weak institutions in recipient countries undermine the effectiveness of government-to-government transfers.⁵ The World Bank (1998: 104) explicitly calls for engaging NGOs to render aid more effective in highly distorted environments and where corruption is pervasive.

Nevertheless it is open to question whether NGOs allocate aid autonomously and complement ODA by compensating for the comparative disadvantages of official aid agencies. NGOs may rather be tempted to replicate the allocation behavior of other donors once the incentives of securing their own funding are taken into account. The principal-agent model of Fruttero and Gauri (2005) suggests that financial dependence of NGOs (the agents) on external funding (notably from official principals) drives a wedge between organizational

⁵ For recent studies on the effectiveness of ODA, see Doucouliagos and Paldam (2009) and Werker et al. (2009). Paldam (1997) finds some evidence that Danish development aid is more successful when projects are small and involve NGOs.

imperatives related to future funding and charitable objectives in locations where NGOs are active. To demonstrate success NGOs are expected to minimize risk which weakens their incentive to operate where they may be needed most.

In particular, official refinancing may render NGOs risk averse in order not to jeopardize future funding. The poverty orientation of NGO aid could be affected by pressure from co-financing governments to demonstrate project-related impact in the short run. Immediate and visible results are easier to achieve when addressing less entrenched forms of poverty. For the same reason, NGOs may be reluctant to work in “difficult environments” of pervasive corruption and state failure (Bebbington 2004). Furthermore, there might be an incentive for NGOs to engage where other donors are active as well. Conformity of location choice can be supposed to make it more difficult for principals to assess the performance of individual agents, thereby helping prevent financial sanctions. NGOs can thus be expected to mimic the allocation behavior of NGO peers and official donor agencies. Edwards and Hulme (1996: 970) reckon that the relations of NGOs with state agencies are “too close for comfort” with NGOs often implementing official policy agendas.

The available empirical evidence on these conflicting hypotheses is limited and inconclusive. Nancy and Yontcheva (2006) find recipient need to be the major determinant of aid allocation by European NGOs, while Dreher, Mölders and Nunnenkamp (2010) as well as Nunnenkamp, Weingarh and Weisser (2009) find the needs-based allocation of Swedish and Swiss NGO aid to be surprisingly weak. Compelling evidence that NGOs engage under particularly difficult local conditions does not exist either (Koch et al. 2009). Nancy and Yontcheva (2006) and Koch et al. (2009) come to opposing results on whether NGOs take the allocation of ODA into account when deciding on where to engage. To the best of our knowledge, Dreher et al. (2009) is the only study explicitly accounting for the degree to which (Swiss) NGOs depend on official refinancing. However, official refinancing played a minor role for most Swiss NGOs, accounting for just 17 percent of self-financed aid by Swiss NGOs in 2002-2005. The question of whether the extent of official refinancing affects the allocation of NGO aid thus remains far from resolved.

As detailed in the next section, we collected data for German NGOs to fill this important gap. Our focus is on assessing the impact of official refinancing on the allocation behavior of NGOs. Specifically, it will be tested for a large sample of recipient countries whether financial dependence leads NGOs to mimic the aid allocation of their official backdonors and NGO peers, weakens the poverty orientation of NGO aid, and provides disincentives for NGOs to work in difficult environments.

3. Data and Method

a. The German NGO Sample

For all major donor countries, the data situation on NGO aid is highly deficient with respect to its distribution across recipient countries. Information on aid allocation published by NGOs in Annual Reports is often confined to regions or major recipient countries. In order to assess the allocation behavior appropriately, however, it is equally important to know which countries get smaller amounts of aid or non at all. We contacted over 60 German NGOs in order to establish for the first time a comprehensive dataset on NGO aid allocation for one of the five big bilateral donors; 41 NGOs provided the complete information required to be included in the subsequent regression analysis (see Table 1 for the sample of NGOs).

With few exceptions such as the German sections of *Plan International* and *Terre des Hommes*, the sample includes the quantitatively most important NGOs engaged in international development cooperation.⁶ Taken together, the 41 NGOs spent an average annual amount of slightly above €one billion over the period 2005-2007 (see Table 1). We thus cover roughly two thirds of overall German NGO aid as reported by BMZ.⁷ Our sample also comprises a number of smaller NGOs. The background of the NGOs ranges from Christian organizations over human rights groups to political parties, and we consider both humanitarian and non-humanitarian NGOs.⁸ Overall, the sample can be regarded as fairly representative of the German NGO landscape.

The representativeness of the sample goes together with a considerable heterogeneity of NGOs. In order to assess at least tentatively whether this affects our results we consider more homogenous sub-samples and use them for robustness checks. First, we exclude the smallest NGOs with a budget below €one million. These NGOs tend to focus on a limited number of recipient countries⁹ and specific activities such as caring for blind people. Second, we perform separate regressions for the NGOs with Christian background and for those without. This is because Christian NGOs are supposed to behave in a peculiar way by

⁶ *Plan International* constitutes a special case because national sections of the organization pool most of their resources, rendering it difficult to identify how much each section contributes to the overall amount of aid given to a particular recipient country.

⁷ This share overstates to some extent the quantitative importance of our sample because BMZ data do not capture financial contributions to NGO budgets by the German Foreign Ministry and the European Union, which are fairly substantial for several NGOs. Yet coverage is still close to 60 percent when only comparing own resources of NGOs.

⁸ We label NGOs humanitarian if they spend at least 50 percent of their budget in countries affected by natural disasters, or if they are characterized as humanitarian by themselves or by VENRO, the umbrella organization of German NGOs engaged in foreign aid.

⁹ About half of the small NGOs included in the sample allocated aid to less than 10 recipients during the period under consideration.

preferring locations where Christianity is the dominant religion.¹⁰ Third, we distinguish humanitarian from non-humanitarian NGOs, assuming that, in the case of disaster, humanitarian aid may sometimes be given irrespective of how the recipient country is governed or whether it is particularly poor.

A widely varying degree of dependence on official refinancing constitutes a further source of heterogeneity among the sample NGOs. As indicated by a weighted average budget share of 39 percent, official refinancing is an important source of funds for German NGOs. This average masks that some NGOs do without or with very little official support, while several others rely on it to 50 percent or more of their aid budget (Table 1). The two political foundations included in the sample stand out in that they are (almost) completely refinanced by the German government. The empirical section below focuses on how aid allocation is affected by these pronounced differences in financial dependence.

b. Variables

In the regression analysis, we take (logged) absolute amounts of aid to the 152 recipient countries on the BMZ list (<http://www.bmz.de/en/figures/InDetail/index.html>) as our dependent variable. This is because donors are more likely to allocate a fixed overall amount of money per country, rather than distributing aid on a per-capita basis (Neumayer 2003). Whenever possible, we use three-year averages of NGO aid for the period 2005-2007.¹¹ Given the volatility of annual aid flows (e.g., Gupta, Pattillo and Wagh 2006), it is advisable to smooth the data.

In line with the previous literature on aid allocation, we include a standard set of possible determinants of NGO aid as explanatory variables. First of all, the logged per-capita GDP of recipient countries provides an indicator of need which has repeatedly been shown to shape the distribution of ODA.¹² We expect the effects of per-capita GDP on NGO aid to be significantly negative. Second, we use “control of corruption” (*Corruption* for short) as presented by Kaufmann, Kraay and Mastruzzi (2007) to measure institutional development, with higher index values indicating less corruption. The effect on NGO aid is ambiguous *a priori*. The argument that NGOs have a comparative advantage to work in difficult environments implies a negative correlation between NGO aid and *Corruption*. As noted in

¹⁰ We tried to test this hypothesis by including a dummy for shared religion in the regression based on the sub-sample of Christian NGOs. However, introducing the dummy jointly with the donor’s aid budget as well as the interaction of ODA and the public refinancing share gives rise to multicollinearity problems (see below for the set of variables included in the regressions).

¹¹ 36 of the 41 NGOs in our sample provided data for all three years.

¹² See Nunnenkamp and Thiele (2006) and the literature given there.

Section 2, however, NGOs may rather prefer environments where success is easier to achieve. Third, we control for (logged) population of recipient countries, which is required as the dependent variable is not in per-capita terms. Fourth, we account for natural disasters which often motivate emergency aid to recipient countries; the severity of disasters is proxied by the logged number of people affected (*Disaster*). Fifth, we set a dummy variable equal to one for so-called fragile states (*Fragile*); fragile states may confront donors with a particularly difficult environment, though one in which aid may provide an effective means of post-conflict resolution (Collier and Hoeffler 2004). Sixth, we control for a particular NGO's overall budget (*NGO budget*), as larger NGOs can be expected to grant higher amounts of aid to a particular recipient country, all else equal.

In addition to these variables, we account for the allocation of ODA and the number of other German NGOs active in a recipient country to test for the hypothesized conformity of location choices. If NGOs mimic official backdonors and NGO peers, we would expect a significantly positive coefficient for the two variables. We are aware of possible over-specification related to the inclusion of ODA and the number of other NGOs as explanatory variables. The allocation of ODA has often been shown to depend on the variables just mentioned.¹³ The same is likely to be true for the concentration of NGOs in particular countries. Therefore, we first regress these two variables on the standard aid determinants. The residuals from these regressions, *ODAResid* and *NGOResid*, comprise the additional information on ODA and the number of NGOs that is not explained by the standard determinants. *ODAResid* and *NGOResid* then enter as explanatory variables into the model on NGO aid.¹⁴ In this way, we avoid to overstate the impact of ODA and that of the presence of other NGOs on the allocation of NGO aid and, conversely, to understate the impact of standard determinants such as per-capita GDP of recipient countries.

Finally, we interact several explanatory variables with the official refinancing share of NGO budgets (*Share*) in order to test whether the impact of these variables on NGO aid depends on the degree of financial dependence. This implies that *Share* by itself has to be included in the list of explanatory variables. The most direct way in which NGOs may respond to financial dependence is by following their official backdonors. In addition, financial dependence may render NGOs risk averse in the sense that they hide behind NGO peers and hesitate to work in particularly poor countries or difficult environments. Hence, *Share* is also interacted with *NGOResid*, *per-capita GDP*, *Corruption* and *Fragile*.

¹³ Recent studies include Dollar and Levin (2006), Kuziemko and Werker (2006) and Dreher, Sturm and Vreeland (2009, 2010).

¹⁴ In other words, we assume that any variation in the other explanatory variables influences NGO aid directly and not via ODA or the number of other NGOs.

Appendix 1 provides detailed definitions and sources for all variables; Appendix 2 presents the descriptive statistics.

c. Method

Our analysis is based on a cross-country regression framework. A distinguishing feature of our data is that the dependent variable has many zero observations. The clustering of zero observations is due to the fact that most NGOs, especially small ones, engage in a limited number of recipient countries; e.g., they may focus on a particular region. This requires a nonlinear method of estimation as OLS estimations would be biased. We adopt a Tobit approach given that the major alternative, the two-step Heckman procedure, suffers from the lack of a meaningful exclusion restriction.¹⁵

Throughout, the unit of observation is the individual NGO. Consequently, we analyze individual location decisions, some of which may be lost when aggregating data at the country level (e.g., Cheng and Stough 2006). German NGOs and aid recipient countries represent the two dimensions of our data. To account for the fact that variables such as per-capita GDP are country-specific (they do not vary over the NGO dimension), standard errors are clustered at the country level. We then obtain:

$$\begin{aligned} y_{ij} &= \max(0, x_{ij}\beta + u_{ij}) \\ u_{ij} | x_i, v_i &\sim Normal(0, \sigma_u^2) \end{aligned} \tag{1}$$

where y_{ij} stands for (log) aid from NGO i to recipient country j and x_{ij} refers to the determinants of NGO aid; u_{ij} is an iid error term.

Note that the coefficient β cannot be interpreted directly in the context of the nonlinear Tobit model. Instead, we are interested in the overall marginal effects of the explanatory variables on $E(y_{ij} | x_{ij})$. We calculate them below at the mean of the respective covariates.

Given that our model includes interaction terms, we face an additional complication: Interpreting the interaction effect in nonlinear models is not analogous to linear models. As Ai and Norton (2003: 123) point out, “the magnitude of the interaction effect in nonlinear models does not equal the marginal effect of the interaction term.” It can even be “of opposite sign.” Moreover, a simple t-test on the coefficient of the interaction term is not appropriate to test for

¹⁵ For a more detailed discussion of methodological issues related to the aid allocation literature, see Neumayer (2002; 2003).

the significance of the interaction. Rather than calculating the cross derivative, we report the marginal effects of all interacted variables graphically (at the mean of the other variables).¹⁶

4. Results

a. Full Sample

The interpretation of our Tobit results focuses on the overall marginal effects that the explanatory variables have on $E(y_{ij} | x_{ij})$. Table 2 reports the results for the full sample of 41 German NGOs.

The basic specification in column (1) is restricted to the standard determinants of aid. The findings on these determinants are similar to the existing literature. Our measure of need for aid, *per-capita GDP*, turns out to be negative and significant at the one percent level; i.e., as expected, higher-income countries get less aid. Also at the one percent level of significance, the positive coefficient on population signals that larger countries receive more NGO aid, though less than proportionally (as usual in the literature). *Corruption* and *Fragile* are insignificant at conventional levels, indicating that German NGOs do not grant more aid to countries with difficult environments – even though the World Bank (1998) suggests that NGOs may have a comparative advantage to work there. This corroborates previous findings by Dreher et al. (2009) as well as Koch et al. (2009). NGOs grant more aid to recipient countries hit by more serious disasters. It is not surprising either that country-specific aid allocations depend positively on the overall budget of NGOs. The latter two effects are also significant at the one percent level.

According to the size of the coefficients, an increase in per-capita GDP by one percent reduces NGO aid by 0.4 percent. The coefficient of 0.59 on the population of recipient countries reveals a modest small country bias of German NGO aid. An increase in the number of people affected by disaster by one percent results in 0.16 percent more NGO aid. An increase in the NGO's overall budget by one percent causes country-specific allocations to rise almost proportionally.

In column (2) we add ODA and the number of other German NGOs present in a recipient country to the basic specification. As can be seen, NGO aid rises with ODA and the number of other NGOs, at the one percent level of significance. However, per-capita GDP becomes insignificant and the coefficients on *Population* as well as *Disaster* decline

¹⁶ We use the marginals command of Stata 11.0 to calculate these marginal effects, or to be precise, to calculate these “marginals.”

considerably when ODA and the number of NGOs are included. This nicely illustrates why we prefer to purge ODA and the number of NGOs of their likely determinants, and to use *ODAResid* and *NGOResid* instead.

Compared to column (1), the standard determinants of NGO aid are hardly affected when augmenting the specification by the purged variables, *ODAResid* and *NGOResid*, in column (3). In particular, per-capita GDP remains significant at the one percent level. As concerns the marginal effect of per-capita GDP, NGO aid still decreases by about 0.4 percent at the mean of the explanatory variables with an increase of per-capita GDP by one percent. This is in the same order of magnitude as the effect estimated by Dreher et al. (2009) for Swiss NGOs. The purged variables themselves also turn out to be highly significant, confirming for the German case the hypothesis that NGOs, in order to minimize risk, engage where other donors are active as well. The effects are quantitatively important. An increase by one percent in that part of ODA not being driven by other variables in the model increases NGO aid by almost 0.5 percent. With each additional NGO (not driven by the other variables in the model) being present in a particular country, NGO aid increases by almost 14 percent, on average.

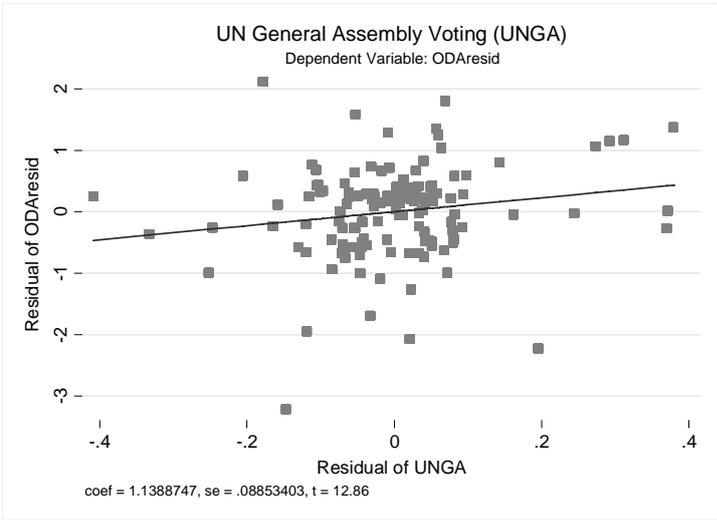
In column (4), we account for the potential endogeneity of *ODAResid* with respect to NGO aid. Arguably, omitted variables might drive both ODA and NGO aid even though we purged the original ODA variable from the influence of variables controlled for in the regression.¹⁷ We make use of an instrument that has become standard in the recent political economy literature on aid: a country's voting behavior in the United Nations General Assembly.¹⁸ Various empirical studies show that developing countries get more aid and better terms from official donors when they have closer political ties with the donor, as measured by their voting behavior in the General Assembly (Thacker 1999; Alesina and Dollar 2000; Barro and Lee 2005; Dreher and Jensen 2007; Kilby 2009b). Relying on data from Voeten (2009), we calculate the number of times a country votes the same as Germany (either both voting yes, both voting no, both voting abstentions, or both being absent). We then divide by the total number of votes in a particular year to derive a measure of voting coincidence between zero and one. While UN voting coincidence ought to be related to the amount of German ODA a country receives, there should not be a direct impact on NGO aid.

¹⁷ The same reasoning may apply to *NGOResid*. Unlike for ODA, however, there is no suitable instrument for the number of other German NGOs. Our results for *NGOResid* therefore have to be interpreted cautiously, even though the very strong significance of this variable in all specifications suggests that its impact would not vanish after instrumentation.

¹⁸ See Kilby (2009a) for an in-depth discussion.

Figure 1 shows the partial leverage plot of UN General Assembly voting arising from the first-stage regression of column (4). Controlling for the other exogenous variables in the model, we find a clear positive relation between UN voting and *ODAResid*. The relationship is highly significant, with a t-value of 12.86. When we include UN voting in the regression of column (3), the coefficient does not turn out to be significant at conventional levels, suggesting that the variable has no direct effect on the allocation of German NGO aid. Using our instrument to test for the endogeneity of *ODAResid* by means of a Wald test, we find that – controlling for the other variables in our model – exogeneity is not rejected at conventional levels of significance, as indicated in the last row of Table 2.

Figure 1: Partial Leverage Plot



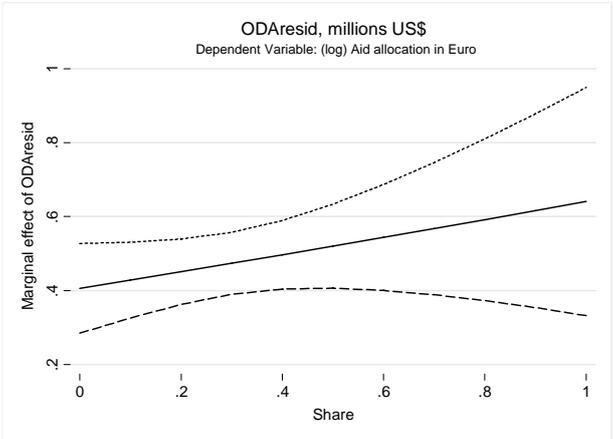
Overall, the IV-Tobit results in column (4) are rather similar to those reported in column (3). The coefficient of *ODAResid* increases in magnitude once endogeneity is controlled for. Concerns that, by ignoring the potential endogeneity of *ODAResid*, the previous Tobit estimates overstate the effect of *ODAResid* on German NGO aid thus appear to be unjustified.

Columns (5) – (9) investigate whether the effect of our main variables of interest on NGO aid varies according to the degree of an NGO’s financial dependence on official backdonors. In column (5) we include *Share* and its interaction with *ODAResid*.¹⁹ The

¹⁹ We no longer report IV estimations at this stage, having found *ODAResid* to be exogenous before. Ideally, we would like to test for the significance of the interaction term in an IV-Tobit framework. With the interaction of *ODAResid* and *Share* included, we would need at least two instruments for the two potentially endogenous variables. Following standard practice and using the interaction of *Share* and UN voting as our second instrument, the IV-Tobit model with the two instrumental variables fails to converge, however. Alternatively, we performed a linear 2SLS regression (not shown). The interaction term turned out to be statistically significant at

marginal effect reported by the standard output of Stata 11.0 suggests that the interacted variable is significant at the ten percent level, with the expected positive coefficient. Recall, however, that this interpretation might be misleading. Figure 2 thus shows the marginal effect of *ODAresid* on (log) NGO aid over the range of *Share*, together with the 90 percent confidence interval. As can be seen, the marginal effect of *ODAresid* is positive and significant (at the ten percent level at least) for all values of *Share*. Moreover, it visually appears that the effect of *ODAresid* on NGO aid is indeed increasing in the financing share. Nevertheless, this effect does not differ in a statistically significant way over the range of *Share*.

Figure 2: Interaction effect of Table 2, column (5)



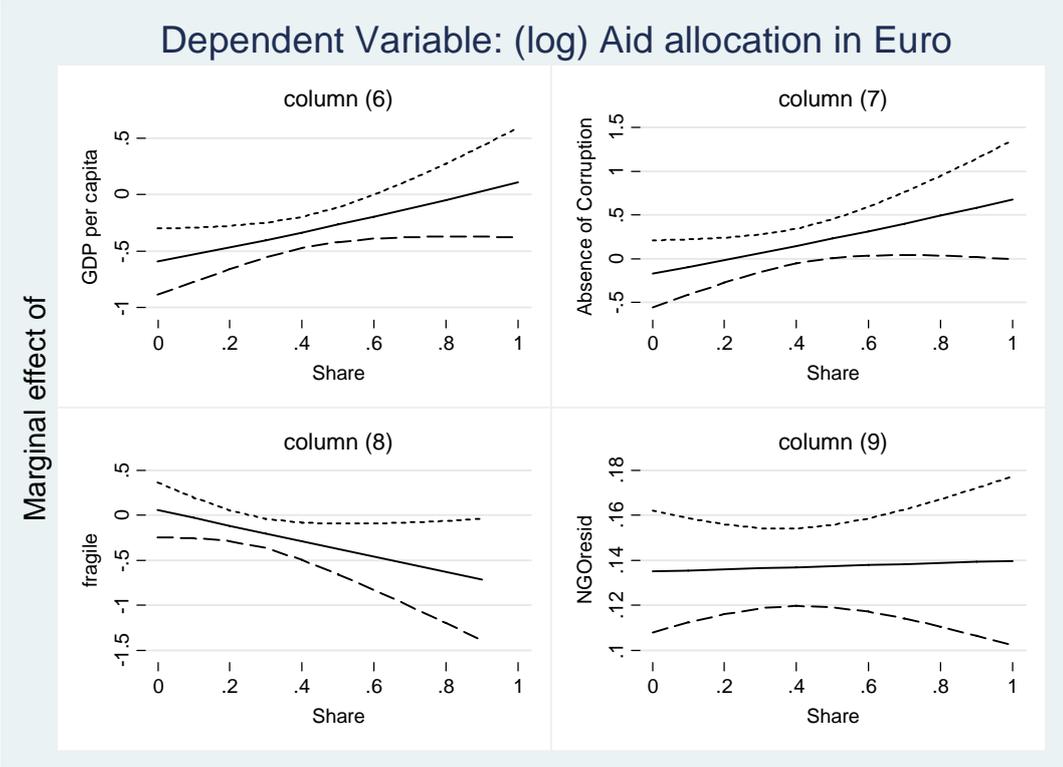
Columns (6) – (9) consider the interaction of *Share* with, respectively, *per-capita GDP*, *Corruption*, *Fragile*, and *NGOresid*. Figure 3 portrays the corresponding marginal effects. The results show that NGO aid is decreasing with per-capita GDP as long as official refinancing accounts for less than 70 percent of the NGO’s overall budget. Beyond this mark per-capita GDP is no longer significant at conventional levels in affecting the allocation of NGO aid. Indeed, the effect of per-capita GDP on NGO aid is significantly different (at the ten percent level) when comparing effects at the lowest and highest values of *Share*. Given that public refinancing contributes more than two thirds to the budgets of several German NGOs in our sample, including two of the quantitatively most important ones

the ten percent level with the expected sign. It should be recalled, however, that linear regressions have to be interpreted with caution in the present context.

(Welthungerhilfe, EED), this finding justifies concerns that the needs-based allocation of NGO aid may suffer from strong financial dependence.

Furthermore, strong financial dependence on official backdonors appears to weaken the NGOs’ incentives of working in difficult environments, as hypothesized by the skeptics mentioned in Section 2 above. According to Figure 3, the effect of *Corruption* is significant at the ten percent level for a *Share* of 0.5-0.9, with a positive coefficient. Fragile states receive less aid, at least at the ten percent level of significance, when *Share* exceeds 0.3, which applies to more than 50 percent of our sample. By contrast, the effect of *NGOresid* is independent of *Share*.

Figure 3: Interaction effects of Table 2, columns (6) – (9)



b. Robustness Checks

As indicated above, we split the full sample into more homogeneous sub-samples in order to test whether our findings are affected by the diversity of the 41 German NGOs covered in the main analysis. Regression results based on various sub-samples which correspond to the

preferred specification in column (5) of Table 2 are reported in Table 3.²⁰ Overall, the estimates appear to be strikingly robust to changes in sample size. Excluding the smallest NGOs with a budget of less than €one million, for example, leaves the impact of all major aid determinants qualitatively unaffected. Most of the explanatory variables – *Population*, *NGOresid*, *Disaster*, *NGO budget* and *per-capita GDP* – remain significant throughout, irrespective of the sample employed in the regressions.

The general robustness of results notwithstanding, two interesting findings for specific sub-groups of the German NGOs stand out. First, non-humanitarian NGOs are shown to be less active in fragile recipient countries with higher levels of corruption. This runs counter to the supposed comparative advantage of NGOs to work in difficult environments. Second, NGOs with a background in Christianity appear to focus particularly strongly on poorer countries. For this sub-group, the marginal effect of an increase in recipients' per-capita GDP on aid allocation amounts to about -0.8 as compared to only -0.2 for non-religious NGOs.

As concerns the role of public refinancing, we focus on the tendency of NGOs to follow their backdonors, which in the regressions above – somewhat surprisingly – was shown to be unaffected by the degree of financial dependence.²¹ In the sub-samples, the impact of *ODAsresid* on NGO aid is generally significant at the five percent level at least at any value of *Share*. The exception is the sub-sample of humanitarian NGOs, where the same holds at the ten percent level only. However, the impact of *ODAsresid* is not statistically different at low as compared to high financial dependence in any sample. This corroborates what we found for the full sample of German NGOs.

5. Summary and Conclusion

NGOs as private not-for-profit agents can play a complementary role in international development cooperation. They tend to be altruistic and should be better suited to provide foreign aid the quality of which is difficult to verify (Werker and Ahmed 2008). Critics suspect, however, that NGOs might be less autonomous than widely believed and rather implement the policy agenda of governments (Edwards and Hulme 1996). In order to shed light on these conflicting propositions, we collected data for 41 German NGOs and analyze

²⁰ We also performed but do not report Tobit and IV Tobit estimations without the interaction of *ODAsresid* and *Share*. Results for the standard variables such as per-capita GDP and *Corruption* are very close to those reported in Table 3. Furthermore, similar to estimations for the full sample, Wald tests typically suggested *ODAsresid* to be exogenous; the estimation for the sub-sample of non-humanitarian NGOs was an exception in this respect, but the IV estimation for this sub-sample did not justify concerns that the effect of *ODAsresid* on NGO aid would be understated due to endogeneity.

²¹ Robustness checks for the other interaction variables are available from the authors on request.

their aid allocation across 152 recipient countries in a Tobit regression framework. In particular, we address the unresolved issue of whether dependence on public refinancing weakens the poverty orientation of NGOs and leads them to mimic official donors and NGO peers.

We find that German NGOs, notably those with a religious background, are clearly more active in poorer countries and where serious disasters struck. At the same time, we corroborate previous studies showing that NGOs are reluctant to engage where corruption is pervasive and states are failing. Non-humanitarian NGOs appear to be most reluctant to complement official aid by working under particularly difficult local conditions. Rather, NGOs tend to engage where official German donors are active. Furthermore, there is herding among German NGOs which may be attributed to risk aversion of individual NGOs. These basic findings are robust to potential endogeneity of official aid.

The dependence of NGOs on public refinancing matters in two respects. First, the poverty orientation of NGO aid weakens with rising dependence. This justifies concerns that the needs-based targeting of NGO aid suffers beyond a certain threshold of public refinancing. Second, strong dependence of public backdonors renders NGOs less inclined to work in difficult environments. On the other hand, the herding behavior of German NGOs is hardly affected by the degree of public refinancing.

Further research may help clarify the driving forces of herding among NGOs and official donors. Deeper insights may be gained by refining the financing structure of NGO budgets. Arguably, private donations may render NGOs as risk averse as public refinancing – considering that NGOs with less official refinancing are under fiercer pressure to raise a sufficient amount of private funding, either through large donations or small amounts by millions of individuals. At the same time, the allocation behavior of NGOs may be affected to a varying degree by different (national and multilateral) backdonors. Furthermore, it may matter whether an NGO depends on a single official source of refinancing, or whether various backdonors contribute to the NGO's budget. Finally, it would clearly be desirable to complement cross-section analyses by panel analyses if data constraints were overcome.

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Table 1 - Average Spending and Public Refinancing of German NGOs, 2005-2007

NGO	Expenditures (€)	Public refinancing share
NGO, non-religious		
action medeor e.V. - Deutsches Medikamentenhilfswerk*	768955	0.41
Ärzte der Welt e.V. - Médecins du Monde Deutschland*	469248	0.40
Ärzte für die Dritte Welt e.V.*	6794946	0.25
Ärzte ohne Grenzen - Deutsche Sektion e.V.*	38435918	0.01
Aktion Canchanabury e. V.	619225	0.05
Aktionsgemeinschaft Solidarische Welt (ASW) e.V.	475202	0
Arbeiter-Samariter-Bund Deutschland e.V. - ASB-Auslandshilfe*	7276530	0.47
arche noVa	1414214	0.18
Deutsche Welthungerhilfe e.V.	119662435	0.72
Deutsches Blindenhilfswerk e.V.	515484	0.17
Deutsches Rotes Kreuz e.V. - Auslandshilfe*	47091490	0.23
Handicap International Deutschland	1227204	0.23
HELP - Hilfe zur Selbsthilfe*	16171730	0.66
Hildesheimer Blindenmission e.V.	240002	0
Marie - Schlei - Verein e.V.	317868	0.49
medico international e.V.*	4502563	0.58
medico mondiale e.V.	1570259	0.34
Oxfam Deutschland e.V.	792273	0.25
SOS Kinderdorf e.V.	21887959	0.38
SOS-Kinderdörfer weltweit - Hermann-Gmeiner-Fonds Deutschland e.V	84210631	0.01
WELTHAUS Bielefeld e.V.	358689	0.68
Werkhof e.V.	261769	0.80
Zukunftsstiftung Entwicklungshilfe bei der GLS Treuhand e.V.	1700374	0.06
AWO International e.V.	2467490	0.68
Save the Children Deutschland e.V.	1458508	0
	360690965	
	(36%)	0.36
All NGOs, non-religious		
NGO, religious		
ADRA Deutschland e.V.	5838741	0.43
ADVENIAT	39540948	0
Brot für die Welt	42374046	0.01
CARE Deutschland-Luxemburg e.V.*	10882185	0.47
Deutsche Lepra- und Tuberkulosehilfe e.V.	13930086	0.02
Deutscher Caritasverband e.V. - Caritas international*	44518398	0.31
Diakonisches Werk der EKD - Diakonie Katastrophenhilfe*	31620761	0.17
EED - Evangelischer Entwicklungsdienst e.V.	96563000	0.66
Johanniter-Auslandshilfe e.V.	8572712	0.20
Kindernothilfe e.V.	46343333	0.03
Malteser International*	20629172	0.48
Misereor Bischöfliches Hilfswerk e.V.	10343404	0.55
Sozial- und Entwicklungshilfe des Kolpingwerkes e.V./Kolping International	436015	0.60
WORLD VISION Deutschland e.V.	66781031	0.10
	562773830	
	(56%)	0.33
All NGOs, religious		
NGO, political		
Friedrich Ebert Stiftung	38976176	0.91
Konrad Adenauer Stiftung	41121833	1
	80098009	
	(8 %)	0.96
All NGOs, political		
All 41 NGOs	1002793850	0.39
	228392939	
	(23 %)	0.28
All NGOs, humanitarian		

* represents a humanitarian NGO as defined in the text.

Source: Own calculations based on information provided by the NGOs.

Table 2: Determinants of NGO Aid, Overall Marginal Effects, 2005-2007

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(log) GDP per capita	-0.400*** (3.96)	-0.074 (0.74)	-0.372*** (3.98)	-0.385*** (3.63)	-0.372*** (3.99)	-0.622*** (3.39)	-0.371*** (3.98)	-0.372*** (4.00)	-0.373*** (4.00)
(log) Population	0.587*** (9.06)	0.168*** (2.79)	0.545*** (7.98)	0.557*** (5.72)	0.545*** (8.05)	0.541*** (8.25)	0.543*** (8.14)	0.543*** (8.12)	0.544*** (8.08)
(log) Number of people affected by disaster	0.159*** (6.99)	0.030 (1.42)	0.131*** (6.38)	0.132*** (5.96)	0.131*** (6.36)	0.131*** (6.20)	0.131*** (6.28)	0.131*** (6.36)	0.132*** (6.36)
No Corruption	0.191 (1.51)	-0.133 (1.12)	0.111 (0.93)	0.117 (0.99)	0.111 (0.93)	0.107 (0.91)	-0.179 (0.73)	0.110 (0.93)	0.111 (0.93)
fragile state dummy	-0.083 (0.83)	-0.068 (0.74)	-0.157* (1.78)	-0.163* (1.74)	-0.157* (1.78)	-0.155* (1.77)	-0.157* (1.80)	0.151 (0.61)	-0.157* (1.78)
(log) overall budget of NGO in Euro	0.928*** (8.73)	0.896*** (8.17)	0.865*** (8.02)	0.873*** (5.61)	0.864*** (7.96)	0.859*** (7.96)	0.861*** (7.95)	0.863*** (7.98)	0.864*** (7.96)
(log) total German ODA to country, with negative ODA set to zero		0.141*** (4.59)							
Number of German NGOs located in country		0.113*** (12.24)							
(log) total German ODA to country, residual			0.486*** (9.00)	1.049* (1.90)	0.415*** (7.63)	0.485*** (9.11)	0.484*** (9.14)	0.485*** (9.07)	0.485*** (9.04)
Number of German NGOs located in country, residual			0.137*** (12.96)	0.139*** (8.42)	0.137*** (12.95)	0.136*** (12.53)	0.136*** (12.74)	0.136*** (12.88)	0.138*** (8.62)
Share of aid budget financed by backdonor					0.105 (0.19)	-5.529* (1.75)	0.594 (0.90)	0.396 (0.65)	0.124 (0.22)
ODAsresid*Share					0.200* (1.74)				
GDP per capita*Share						0.720* (1.74)			
No Corruption*Share							0.809 (1.50)		
Fragile*Share								-0.887 (1.50)	
NGOresid*Share									-0.005 (0.16)
Method	Tobit	Tobit	Tobit	IV-Tobit	Tobit	Tobit	Tobit	Tobit	Tobit
Number of observations	5248	5248	5248	5207	5248	5248	5248	5248	5248
Number of NGOs	41	41	41	41	41	41	41	41	41
Pseudo R-Square	0.12	0.14	0.15		0.15	0.15	0.15	0.15	0.15
Wald test of exogeneity (Prob > chi2)				0.23					

Note: *, **, *** significant at the 10, 5, 1 percent level.

Table 3: Tests for Robustness

	(1) excluding NGOs with budget<1 mill €	(2) only humanitarian NGOs	(3) no humanitarian NGOs	(4) only religious NGOs	(5) no religious NGOs
(log) GDP per capita	-0.477*** (3.15)	-0.466*** (3.33)	-0.333*** (2.82)	-0.803*** (2.73)	-0.214*** (2.76)
(log) Population	0.814*** (7.24)	0.598*** (7.40)	0.522*** (6.20)	0.816*** (5.27)	0.425*** (6.33)
(log) Number of people affected by disaster	0.197*** (5.87)	0.176*** (5.40)	0.114*** (4.30)	0.291*** (6.13)	0.073*** (3.53)
No Corruption	0.075 (0.41)	-0.261 (1.21)	0.246* (1.89)	0.028 (0.08)	0.135 (1.27)
fragile state dummy	-0.209 (1.46)	0.009 (0.06)	-0.219** (2.11)	-0.454* (1.89)	-0.056 (0.69)
(log) overall budget of NGO in Euro	1.444*** (6.56)	0.833*** (3.57)	0.803*** (6.34)	1.385*** (4.69)	0.657*** (6.09)
(log) total German ODA to country, residual	0.622*** (6.91)	0.413*** (3.34)	0.381*** (6.22)	0.688*** (3.94)	0.310*** (6.88)
Number of German NGOs located in country, residual	0.202*** (13.77)	0.157*** (6.74)	0.128*** (10.58)	0.249*** (11.48)	0.093*** (8.28)
Share of aid budget financed by backdonor	0.038 (0.04)	-2.901* (1.84)	0.444 (0.79)	1.412 (0.87)	-0.291 (0.74)
oda_resid*share	0.221 (1.23)	0.521* (1.95)	0.170 (1.36)	0.232 (0.45)	0.149 (1.63)
	Tobit	Tobit	Tobit	Tobit	Tobit
Number of observations	3840	1536	3712	1792	3456
Number of NGOs	30	12	29	14	27
Pseudo R-Square	0.12	0.15	0.15	0.11	0.17

Note: *, **, *** significant at the 10, 5, 1 percent level.

Appendix 1 – Definition and Sources of Variables

Variable	Short name	Source/ remarks
(log) aid allocation by NGO in Euro	NGO aid	Data made available by German NGOs; annual average for 2005-2007
(log) total German ODA to country, with negative ODA set to zero	ODA	BMZ; http://www.bmz.de/en/figures/InDetail/index.html ; as noted in the text, some BMZ data are published only on the German version of the website; annual average for 2005-2007; 1000 Euro
Number of German NGOs located in country	Other NGOs	Count data based on the sample of 41 NGOs with data on aid allocation in Euro plus some 20 NGOs for which it is only known whether or not they were active in a particular country; count refers to other NGOs, i.e., excludes the NGO to which the specific observation refers
(log) total German ODA to country, residual	ODAsid	See text for calculation of residuals
Number of German NGOs located in country, residual	NGOsid	See text for calculation of residuals
(log) overall budget of NGO in Euro	NGO budget	Annual reports and data made available by German NGOs; annual average for 2005-2007
Share of aid budget financed by backdonor	Share	Annual reports and data made available by German NGOs; annual average for 2005-2007
(log) GDP per capita	Per-capita GDP	World Bank, WDI; US\$ in 2004
(log) population		World Bank, WDI; thousands in 2004
(log) number of people affected by disaster	Disaster	Emergency Events Database; http://www.emdat.be ; annual average 2004-2006 in 1000
No corruption	Corruption	World Bank; http://info.worldbank.org/governance/wgi/index.asp ; higher index values reflect less corruption; data refer to 2004
Fragile state dummy	Fragile	World Bank, CPIA; dummy = 1 for countries with CPIA of 3.0 or below in 2004
UNGA voting with Germany	UN voting	Voeten (2009); voting coincidence between recipient country and Germany in the UN General Assembly; average for 2003-2005

Appendix 2: Descriptive Statistics (estimation sample, Table 2, column 1)

variable	min	max	mean	sd
(log) Aid allocation by NGO in Euro	0.00	17.13	3.22	5.39
(log) total German ODA to country, with negative ODA set to zero	0.00	6.54	2.30	1.61
Number of German NGOs located in country	0.00	46.00	14.25	10.32
(log) overall budget of NGO in Euro	12.39	18.64	15.57	1.96
Share of aid budget financed by backdonor	0.00	1.00	0.34	0.28
(log) GDP per capita	5.53	10.19	7.97	1.03
(log) Population	4.27	14.07	8.87	1.94
(log) Number of people affected by disaster	-2.30	11.23	2.78	3.19
No Corruption	-1.79	1.42	-0.51	0.63
fragile state dummy	0.00	1.00	0.31	0.46
UNGA voting with Germany	0.47	0.88	0.68	0.07